What is claimed is:

1. A filter catalyst for purifying exhaust gases comprising:

a honeycomb structure including:

inlet cells clogged on the downstream side of the exhaust gases;

outlet cells neighboring the inlet cells and clogged on the upstream side of the exhaust gases;

filter cellular walls demarcating the inlet cells and outlet cells, and having pores of an average pore diameter of from 20 to 40 $\mu$m; and

a catalytic layer formed on the filter cellular walls and on the inside surface of the pores, and having:

a first catalyst support consisting of porous oxide with an average particle diameter of 1 $\mu$m or less;

a second catalyst support consisting of the porous oxide with an average particle diameter within a range from 1/20 to 1/2 of the average pore diameter of the filter cellular walls; and

a catalytic ingredient; and

the catalytic layer having parts where the second catalyst support exists and other parts where the second catalyst support does not exist and having uneven surfaces.

2. The filter catalyst set forth in claim 1, wherein the second catalyst support is loaded on the layer comprising the first catalyst support.

3. The filter catalyst set forth in claim 1, wherein the porosity of the filter cellular walls is from 60 to 80 %.

4. The filter catalyst set forth in claim 1, wherein the catalytic layer contains an $NO_x$ sorbent selected from alkali

metals, alkali earth metals or rare-earth elements, which is loaded at least on one of the first catalyst support and the second catalyst support.

5. The filter catalyst set forth in claim 2, wherein the catalytic layer contains an $NO_x$ sorbent selected from alkali metals, alkali earth metals or rare-earth elements, which is loaded at least on one of the first catalyst support and the second catalyst support.

6. The filter catalyst set forth in claim 3, wherein the catalytic layer contains an $NO_x$ sorbent selected from alkali metals, alkali earth metals or rare-earth elements, which is loaded at least on one of the first catalyst support and the second catalyst support.

7. The filter catalyst set forth in claim 1, wherein the catalytic layer contains an $NO_x$-adsorbing member, by which $NO_x$ is adsorbed at low temperatures and is released at high temperatures.

8. The filter catalyst set forth in claim 2, wherein the catalytic layer contains an $NO_x$-adsorbing member, by which $NO_x$ is adsorbed at low temperatures and is released at high temperatures.

9. The filter catalyst set forth in claim 3, wherein the catalytic layer contains an $NO_x$-adsorbing member, by which $NO_x$ is adsorbed at low temperatures and is released at high temperatures.

10. The filter catalyst set forth in claim 4, wherein the catalytic layer contains an $NO_x$-adsorbing member, by which $NO_x$ is adsorbed at low temperatures and is released at high temperatures.

11. The filter catalyst set forth in claim 1, wherein the catalytic layer contains an $NO_x$-adsorbing member, comprising

a powder including at least zirconia and ceria, and noble metal loaded on said powder.

12. The filter catalyst set forth in claim 2, wherein the catalytic layer contains an $NO_x$-adsorbing member, comprising a powder including at least zirconia and ceria, and noble metal loaded on said powder.

13. The filter catalyst set forth in claim 3, wherein the catalytic layer contains an $NO_x$-adsorbing member, comprising a powder including at least zirconia and ceria, and noble metal loaded on said powder.

14. The filter catalyst set forth in claim 4, wherein the catalytic layer contains an $NO_x$-adsorbing member, comprising a powder including at least zirconia and ceria, and noble metal loaded on said powder.

15. A manufacturing method of a filter catalyst for purifying exhaust gases, comprising steps of:

preparing a honeycomb structure including;

inlet cells clogged on the downstream side of the exhaust gases;

outlet cells neighboring the inlet cells and clogged on the upstream side of the exhaust gases; and

filter cellular walls demarcating the inlet cells and outlet cells, and having pores of an average pore diameter of from 20 to 40$\mu$m;

forming a first catalytic layer on the filter cellular walls by wash-coating a slurry including mainly the porous oxide with an average particle diameter of 1$\mu$m or less; and forming a second catalytic layer on the filter cellular walls by wash-coating a slurry including mainly the porous oxide with an average particle diameter within a range from 1/20 to 1/2 of the average pore diameter of the filter

cellular walls.